

CLAIMS

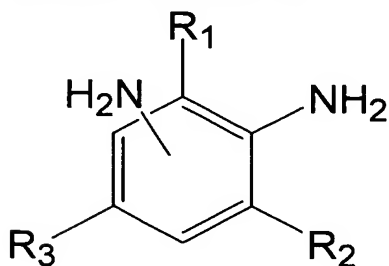
1. A method of manufacturing an optical member by mixing the following components (A) and (B), and immediately after mixing, casting a mixture into a casting mold to obtain a molded article, characterized in that

said component (A) is heated to a viscosity of 5000CPS or less, the heated component (A) is passed through a filter while being pressurized to remove foreign matter comprised in component (A), subsequently degassed under a reduced pressure, and then subjected to said mixing.

Component (A): isocyanate terminal prepolymer in the form of a reaction product of an aliphatic diisocyanate having an intramolecular cyclic structure and a diol having an average molecular weight of 300-2,500.

Component (B): one or more aromatic diamines denoted by general formula (I). (In general formula (I), R₁, R₂ and R₃ are each dependently any of a methyl, ethyl or thiomethyl group.)

General formula (I)



2. The method of manufacturing according to claim 1, wherein the aliphatic diisocyanate having an intramolecular cyclic structure, that is a starting material of component (A), is an alicyclic diisocyanate.
3. The method of manufacturing according to claim 2, wherein the alicyclic diisocyanate is at least one selected from the group consisting of 4,4'-methylenebis(cyclohexyl isocyanate), isophorone diisocyanate, 1,3-bis(isocyanate methyl)cyclohexane and norbornene diisocyanate.
4. The method of manufacturing according to any of claims 1 to 3, wherein the diol having an average molecular weight of 300-2,500, that is a starting material of component (A), is a polyether diol or polyester diol.
5. The method of manufacturing according to any of claims 1 to 4, wherein the isocyanate group content of component (A) ranges from 10 to 20 weight percent.
6. The method of manufacturing according to any of claims 1 to 5, wherein said mixing and casting into the casting mold are carried out in a reaction injection molding machine, and said removal of foreign matter is carried out prior to feeding to the reaction injection molding machine.
7. The method of manufacturing according to any of claims 1 to 6, wherein said filter has an absolute filtration precision ranging from 0.05 to 10 μ m.
8. The method of manufacturing according to any of claims 1 to 7, wherein a filter member of said filter is one selected from the group consisting of Teflon difluoride (PTFE), Teflon tetrafluoride (PTFE), polypropylene (PP), polyvinylidene fluoride (PVDF), polyphenylene sulfide (PPS), cellulose, Nylon 66, 304 stainless steel, and 316 stainless steel.
9. The method of manufacturing according to any of claims 1 to 8, wherein said molded article is a plastic lens.

10. A method of manufacturing a plastic lens by mixing the following components (A) and (B), immediately after mixing, casting a mixture into a casting mold and polymerizing it to obtain a molded article, wherein

the mixing of the following components (A) and (B) is carried out after heating said component (A) to reduce its viscosity,

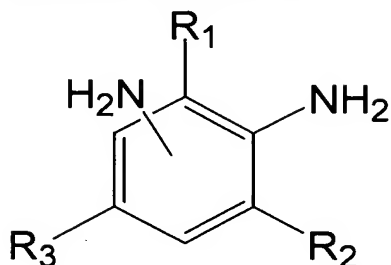
said casting mold has a mold for forming one side of the lens and a mold for forming the other side thereof that are positioned opposite at a prescribed interval, a circular gasket is positioned around said two molds, and a cavity is formed by said molds and gasket, said gasket has a casting hole for casting a mixture of said components (A) and (B) into said cavity and a discharge hole for discharging gas and said mixture in said cavity to an exterior of the casting mold, that are positioned opposite in a diameter direction,

said casting into the casting mold is carried out in a state that said casting mold is tilted from or perpendicular to a horizontal plane as well as said discharge hole is positioned at a top.

Component (A): isocyanate terminal prepolymer in the form of a reaction product of an aliphatic diisocyanate having an intramolecular cyclic structure and a diol having an average molecular weight of 300-2,500.

Component (B): one or more aromatic diamines denoted by general formula (I). (In general formula (I), R_1 , R_2 and R_3 are each dependently any of a methyl, ethyl or thiomethyl group.)

General formula (I)



11. The method of manufacturing according to claim 10, characterized in that said casting mold is preheated prior to casting of said mixture.

12. The method of manufacturing according to claim 10 or 11, wherein casting of said mixture into said casting mold is carried out through a tube, one end of which is mounted in a detachable manner to a discharge outlet provided in a mixing chamber in which the following components (A) and (B) are mixed, and the other end of which is connected to said casting hole of the casting mold.

13. The method of manufacturing according to any of claims 10 to 12, characterized in that

said gasket is provided with a casting inlet having an indentation communicating with said cavity through said casting hole and a discharge outlet having an indentation communicating with said cavity through said discharge hole,

the casting mold in which said mixture has been cast is left in a low-temperature atmosphere to polymerize said mixture, subsequently a polymerized portion within the cavity is severed respectively from that within the casting inlet in the vicinity of the casting hole and from that within the discharge outlet in the vicinity of the discharge hole, and then the casting mold is left in a high-temperature atmosphere to further proceed polymerization.

14. The method of manufacturing according to claim 13, characterized in that said gasket is comprised of an elastic resin, said casting inlet and said discharge outlet are provided on an outer circumference of said gasket, said severing in the vicinity of the casting hole and discharge hole is carried out by bending said polymerized portion within the casting inlet and that within the discharge outlet together with the casting inlet and the discharge outlet.

15. The method of manufacturing according to any of claims 10 to 14, wherein said plastic lens is an eyewear lens.

16. A gasket for molding plastic lenses comprised of a cylindrical member comprising openings for fitting by insertion a first mold and second mold comprising a molding surface for forming an optically functional surface of plastic lenses, characterized in that

said cylindrical member has;

a support member for positioning and holding said first mold by contacting at least a rim portion of the molding surface of said first mold;

a casting groove and a discharge groove that are cut downward from an end surface of the opening in a depth direction and positioned opposite on the same opening of the cylindrical member; and

a casting inlet comprising an indentation opening to the same direction as the direction to which said casting groove is cut downward and communicating with said casting groove, and a discharge outlet comprising an indentation opening to the same direction as the direction to which said discharge groove is cut downward and communicating with said discharge outlet on an outer wall surface.

17. The gasket according to claim 16, characterized by being provided with a cast receiving member, on an outer side of said casting inlet, comprising an indentation surrounding a circumference of the casting inlet and opening to the same direction as the casting inlet.

18. The gasket according to claim 16 or 17, wherein in an opening end portion of the cylindrical member on both sides of the opening end portion of said casting groove, a casting groove both-side member is provided that is one step lower than the opening end portion of the cylindrical member.

19. The gasket according to claim 18, characterized in that heights of an upper end of said casting groove both-side member and an opening end of said casting inlet are set so that the upper end of said casting groove both-side member and the opening end of said casting inlet are positioned on the same plane as an upper end of the rim portion of said first mold when the first mold is fitted with the opening of said cylindrical member so as to block said casting groove from an inner wall side of the cylindrical member.

20. The gasket according to any of claims 16 to 19, wherein said support member is also one for positioning and holding said second mold by contacting a rim portion of the molding surface of said second mold.

21. A casting mold for molding plastic lenses, wherein a first mold and second mold are detachably held in said opening of the gasket according to any of claims 16 to 20 so that a molding surface of the first mold and a molding surface of the second mold are positioned opposite at a prescribed interval to form a cavity corresponding to a lens shape within the cylindrical member.

22. A monomer casting jig equipped with a nozzle for casting a starting material monomer of plastic lens into the casting mold according to claim 21, characterized in that

a casting inlet seal member is provided around the nozzle, and
said casting inlet seal member has a flat portion for contacting an opening end of said casting inlet, an upper end of said casting groove both-side member, and an upper end of the rim of said first mold of said

casting mold (where the first mold is fitted with the opening of said cylindrical member so that said casting groove is blocked from an inner wall side of the cylindrical member).

23. The casting jig according to claim 22, characterized by being provided with a fitting member fitting with a step portion of said cylindrical member on said casting inlet seal member.